



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,375	07/06/2005	Gou Asai	038685.56534US	8399

23911 7590 11/30/2006

CROWELL & MORING LLP
INTELLECTUAL PROPERTY GROUP
P.O. BOX 14300
WASHINGTON, DC 20044-4300

EXAMINER

SOLIS, ERICK R

ART UNIT	PAPER NUMBER
----------	--------------

3747

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/541,375

Applicant(s)

ASAI, GOU

Examiner

Erick R. Solis

Art Unit

3747

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 7/6/05 and 5/15/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent

Application Publication No. 2002/0011233. See the abstract and paragraphs 10-16.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1,2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-188474 (Document 1). Document 1 teaches a method for controlling a premix compression self-igniting internal combustion engine wherein the effective compression ratio is altered by temporarily re-opening the exhaust valve during the compression process and a method for controlling a premix compression self-igniting internal combustion engine wherein the effective compression ratio is altered to that at which the most suitable self-igniting time is obtained for each operation region by modifying the closure period of the valve that is opened during the

compression process. It would have been an obvious matter of design choice for a person skilled in the art to alter the closure period of the exhaust valve by altering the closure time.

5. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Document 1 in view of JP 11-257108 (Document 2). Document 1 applies as in claim 1 above, but does not appear to teach modifying the exhaust valve closure time based on speed, load and suction temperature. Document 2 discloses a map prepared according to engine revolutions and load and a method for controlling compression self-igniting internal combustion engine wherein, when the suction temperature is high, the effective compression ratio is low and when the suction temperature is low, the effective compression ratio is high. It would have been obvious to one of ordinary skill in the art to have included such a map in the engine of Document 1 since this would have allowed for better ignition timing control based on speed, load and suction temperature.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Document 1 in view of JP-7259655 (Document 3). Document 1 applies as in claim 1 above, but does not appear to teach a method for controlling a compression self-igniting internal combustion engine wherein the effective compression ratio is increased in those operation regions in which the EGR is high and the effective compression ratio is reduced in those operation regions in which the EGR is low. Document 3 discloses altering the compression ratio in such a manner. It would have been obvious to one of ordinary skill in the art to have included such a map in the engine of Document

Art Unit: 3747

1 such that the compression ratio would also be responsive to EGR rate as taught by Document 3, since EGR rate would also affect ignition timing.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Document 1 in view of Japanese Utility Model Application No. 16284/1985 (Document 4). Document 1 applies as in claim 1 above, but does not appear to teach a method for controlling a compression self-igniting internal combustion engine wherein the effective compression ratio is low when the cooling water temperature is high and the effective compression ratio is increased when the cooling water temperature is low. Document 4 discloses altering the compression ratio in such a manner. It would have been obvious to one of ordinary skill in the art to have included such a map in the engine of Document 1 such that the compression ratio would also be responsive to cooling water temperature as taught by Document 4.

8. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Document 1 in view of JP 11-210539 (Document 5). Document 1 applies as in claim 1 above, but does not appear to teach a method for controlling a compression self-igniting internal combustion engine wherein the closure timing of the valve which is open during the compression process is delayed during periods of irregular combustion. Document 5 discloses altering the valve timing in such a manner. It would have been obvious to one of ordinary skill in the art to have included such a map in the engine of Document 1 such that the valve timing would also be modified during periods of irregular combustion such that a maximum allowable pressure was not exceeded.

Art Unit: 3747

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erick R. Solis whose telephone number is (703) 308-2651. The examiner can normally be reached on Monday-Thursday.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.



Erick R. Solis
Primary Examiner
Art Unit 3747

ers

November 25, 2006